

What is claimed is:

- 1 1. A passive resonant vibration control device for an engine cover or transmission cover,  
2 comprising:
  - 3 a) a piezoelectric strain actuator attached to a surface of the engine cover or  
4 transmission cover, and
  - 5 b) a resonance circuit interacting with the piezoelectric strain actuator to  
6 control, absorb or dissipate structural motion or vibration of the  
7 engine or transmission cover resulting from gear or chain-induced  
8 vibration, comprising an analog resonant circuit tuned to a  
9 resonance frequency of the engine cover or transmission cover  
10 which is desired to be controlled.
- 1 2. The vibration control device of claim 1, further comprising a piezoelectric counterforce  
2 actuator having an input coupled to the resonant circuit, such that when the circuit  
3 is driven at resonance by the piezoelectric strain actuator, the piezoelectric  
4 counterforce actuator is driven to apply a canceling force to the engine or  
5 transmission cover.
- 1 3. The vibration control device of claim 1, wherein the piezoelectric strain actuator is  
2 attached to the engine or transmission cover adjacent to a relatively rigid part  
3 thereof.
- 1 4. The vibration control device of claim 1, wherein the piezoelectric strain actuator is  
2 attached to the engine or transmission cover adjacent to a point of vibration  
3 thereof.